Government of **Western Australia**
Department of **Mines and Petroleum**

Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6176/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Westdeen Holdings Pty Ltd**

1.3. Property details

Property: Mining Lease 70/173
Mining Lease 70/1078
Local Government Area: Shire of Wyalkatchem
Colloquial name: Cowcowing Lakes Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
6.97		Mechanical Removal	Mineral Production

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 11 September 2014

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. Two Beard vegetation associations have been mapped within the application area: **Beard vegetation association 125:** Bare areas; salt lakes; and **Beard vegetation association 1061:** Mosaic: Medium sparse woodland, salmon gum and yorrell / Succulent steppe; saltbush and samphire.	Cowcowing Lakes Project. Westdeen Holdings Pty Ltd (Westdeen) proposes to clear up to 6.97 hectares of native vegetation within a total boundary of 11.5 hectares for the purpose of gypsum mining. The project is located approximately 18 kilometres north of Wyalkatchem, in the Shire of Wyalkatchem.	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	Vegetation condition was determined by the assessing officer following a review of aerial imagery and photographs provided by the proponent.

3. Assessment of application against clearing principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments

Proposal is not likely to be at variance to this Principle

The application area occurs within the Merredin or AW1 - Ancient Drainage sub-region of the Avon Wheatbelt Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). This bioregion is characterised by residual lateritic uplands and derived sandplains which support proteaceous scrub-heaths rich in endemics, and Quaternary alluvials and eluvials which support mixed eucalypt, *Allocasuarina huegeliana* and Jam-York Gum woodlands (CALM, 2002). Salt lake chains occur as remnants of ancient drainage systems that only function during years with above-average rainfall (CALM, 2002). Gypsum dunes, such as those that may occur within the application area, provide habitat for several gypsum-specialist Threatened and Priority flora (Mattiske Consulting, 1995 as cited in CALM, 2002).

A vegetation assessment within gypsiferous salt lake habitat within the Avon Wheatbelt recorded five Threatened and 25 Priority flora species (Rick, 2011). The vegetation assessment also suggests that many vegetation communities which occur within this habitat may be of conservation significance, including three within Cowcowing Lakes (Rick, 2011). Following floristic analysis, vegetation composition within Cowcowing Lakes was not shown to be significantly different from other lake systems in the area (Rick, 2011).

The vegetation within the application area is mapped as belonging to Beard vegetation associations 125 and 1061. Vegetation is described as sparse or bare, in parts comprising medium sparse woodland, succulent steppe, saltbush and samphire (Government of Western Australia, 2013; GIS Database). Using a 10 kilometre

buffer of the application area, NatureMap (DEC, 2014) returned records for 115 flora species, including two Priority flora (*Fitzwillia axilliflora*; Priority 2 and *Verticordia mitchelliana* subsp*. mitchelliana*; Priority 3) and two Threatened flora (*Frankenia conferta* and *Pityrodia scabra* subsp*. scabra*).

Frankenia conferta is a small shrub with small, pale pink flowers grouped in dense heads at the tops of branches (DEC, 2008a). Potential habitat occurs within the application area for this species, and it has been recorded elsewhere within Cowcowing Lakes (DPaW, 2014c). However, its occurrence cannot be confirmed in the absence of a flora survey. The habitat type present within the application area is also compatible with *Fitzwillia axilliflora* (DPaW, 2014c). This species occurs from the margins of salt lakes or saline flats, and has been previously recorded from within Cowcowing Lakes (DPaW, 2014c). There are a limited number of records for this species, and therefore DPaW (2014c) advise that any occurrences of *F. axilliflora* may be of conservation significance. DPaW (2014c) advise that based on the hydrology of the Cowcowing lakes system, clearing within 50 metres of flora has the potential to cause indirect impacts to individuals. Impacts to conservation significant flora may be minimised by the implementation of a flora management condition which requires a targeted survey to be conducted for rare or priority flora, and a 50 metre buffer to be maintained around rare or priority flora recorded within the application area.

The application area is unlikely to provide habitat for *Pityrodia scabra* subsp*. scabra* or *Verticordia mitchelliana* subsp*. Mitchelliana*. *Pityrodia scabra* subsp*. scabra* is a conspicuous shrub which occurs only in Dowerin and Wyalkatchem (DPaW, 2014, Westdeen, 2014a). It is found at a single site adjacent to the application area, but does not occur within the application boundary (DPaW, 2014a; Westdeen, 2014a). Florabase records for *Verticordia mitchelliana* subsp*. mitchelliana* originate from brown or yellow sand, and do not appear to occur within salt lake habitat (DPaW, 2014b). Furthermore, this species does not have a highly restricted distribution (DPaW, 2014b). Therefore, the proposed clearing is not likely to impact the conservation of this species.

Vegetation within the application area does not represent either a Threatened Ecological Community (TEC), or a Priority Ecological Community (PEC) (GIS Database).

There is one habitat type within the application area, which may be described as 'sparsely vegetated salt lake' (GIS Database). Naturemap returned records for 54 avian, one mammal, two reptile and 13 invertebrate species within 10 kilometres of the application area (DEC, 2014). Species recorded include two conservation significant fauna; the Peregrine Falcon (*Falco peregrinus*; Schedule 1), and the Western Spiny-tailed Skink (interior WA and Shark Bay) (*Egernia stokesii* subsp. *Badia*; Threatened). However, neither species is likely to be significantly dependent on habitat within the application area.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

CALM (2002)
DEC (2008a)
DEC (2014)
DPaW (2014a)
DPaW (2014b)
Government of Western Australia (2013)
Rick (2011)
Westdeen (2014a)
GIS Database:
- IBRA WA (Regions - Sub Regions)
- Pre-European Vegetation
- Threatened Ecological Sites Buffered

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments

Proposal is not likely to be at variance to this Principle

No fauna surveys have been conducted over the application area. According to available imagery, there is one fauna habitat within the application area, which could be described as 'sparsely vegetated salt lake' (GIS Database). The proponent has observed the presence of rabbit burrows within the application area (Westdeen, 2014).

Two conservation significant fauna (the Peregrine Falcon and Western Spiny-tailed Skink) have been recorded within 10 kilometres of the application area (DEC, 2014). However, the application area is highly unlikely to represent important habitat for either species, based on the absence of suitable nesting trees and microhabitat suitable for shelter (Westdeen, 2014; GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

DEC (2014)
Westdeen (2014)
GIS Database:
- Cowcowing Lakes 25cm Orthomosaic - Landgate 2004

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments

Proposal may be at variance to this Principle

A search within the NatureMap database (DEC, 2014) shows records for the Threatened flora *Frankenia conferta* within 10 kilometres of the application area. This species has a distribution which extends between Koorda, Dallwallinu, Perenjori and Coorow, growing around the high water mark of salt lake shorelines to the tops of low berms within saline pans (DEC, 2008a). *F. conferta* also occur on the floor of major drainage lines within localised swales subject to seasonal inundation (DEC, 2008a). Populations occur among other halophytic shrubs on clay sands with gypsum or white-grey shallow sand over clay (DEC, 2008a).

A Management Plan produced for this species suggests that all populations are important (DEC, 2008a). DPaW (2014c) advise that this species has the potential to occur within the application area, and any occurrence within the application area would represent a range extension. DPaW also advise that the clearing activity has the potential to have indirect hydrological impacts on flora within a range of 50 metres (DPaW, 2014c). Potential impacts to rare flora may be minimised by the implementation of a flora management condition.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology

DEC (2008a)
DEC (2014)
DPaW (2014c)

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments

Proposal is not likely to be at variance to this Principle

According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). There are no TECs within 100 kilometres of the application area (GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

GIS Database:
- Threatened Ecological Sites Buffered

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments

Proposal is not likely to be at variance to this Principle

The application area falls within the Avon Wheatbelt Biogeographic Regionalisation of Australia (IBRA) bioregion in which approximately 18.7% of the pre-European vegetation remains (see table) (Government of Western Australia, 2013; GIS Database). According to the 'Bioregional Conservation Status of Ecological Vegetation Classes' (Department of Natural Resources and Environment, 2002), this value gives the region a Conservation Status of 'Vulnerable'.

The vegetation of the application area has been mapped as the following Beard vegetation associations (GIS Database):

125: Bare areas; salt lakes
1061: Mosaic: Medium sparse woodland, salmon gum and yorrell / Succulent steppe; saltbush and samphire.

Approximately 90.25% and 9.8% of Beard vegetation association 125 remains at a state and bioregional level, respectively (Government of Western Australia, 2013). Approximately 47.6% of Beard vegetation association 1061 remains at both a state and bioregional level (Government of Western Australia, 2013). The percentage of remaining vegetation association 125 at a bioregional level is below the 30% threshold recommended in the National Objectives Targets for Biodiversity Conservation, due to the extensive clearing which has occurred within the Avon Wheatbelt bioregion. However, according to both photographs of the application area provided by the proponent and aerial imagery, vegetation within the application area appears to be comprised of small to medium shrubs (mostly samphire and saltbush), with few trees, that provide a moderate to low level of ground cover (GIS Database). Therefore, vegetation within the application area is more likely to represent Beard vegetation association 1061, which is above the 30% threshold.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in DPaW Managed Lands (and post clearing %)
IBRA Bioregion – Avon Wheatbelt	9,517,109	1,778,407	~18.7	Vulnerable	~2.4 (9.6)
IBRA Subregion - Merredin	6,524,181	1,368,789	~21.0	Vulnerable	~2.5 (9.1)
Local Government – Shire of Wyalkatchem	159,510	13,203	~8.3	Endangered	~0.9 (9.92)
Beard veg assoc. – State					
125	3,485,787	3,146,091	~90.3	Least Concern	~9.0 (8.1)
1061	42,747	20,361	~47.6	Depleted	~17.8 (26.1)
Beard veg assoc. – Bioregion					
125	167,448	16,356	~9.8	Endangered	~20.0(20.25)
1061	42,747	20,361	~47.6	Depleted	~17.8 (26.14)
Beard veg assoc. – subregion					
125	148,564	13,695	~9.2	Endangered	~16.5 (12.78)
1061	42,747	20,361	~47.6	Depleted	~17.8 (26.14)

* Government of Western Australia (2013)
** Department of Natural Resources and Environment (2002)

Aerial imagery indicates that a majority (approximately 95%) of the Cowcowing lakes are undisturbed, and that similar vegetation exists outside of the application area within the lakes (GIS Database). Vegetation outside the Cowcowing lakes has been extensively cleared for agricultural purposes (GIS Database), and therefore the Cowcowing lakes may be considered as a remnant on a local scale. There is a small remnant of woodland vegetation approximately 200 metres east of the application area (GIS Database). However, the application area is unlikely to be significant to maintaining connectivity within the landscape, due to the significant difference in vegetation type within the Cowcowing lakes compared to the surrounding vegetation. The saline nature of the salt lake, combined with the absence of woodland vegetation, results in a low potential for the application area to function as a dispersal corridor for fauna.

Part of the lake system approximately 7.5 kilometres north-east of the application area is protected within the Dukin Nature Reserve and Warramuggan Nature Reserve (GIS Database). The proposed clearing of 6.97 hectares within Cowcowing Lakes, which covers an approximate 15,000 hectares (GIS Database), will not impact the fragmentation of habitat within the Cowcowing lakes, or impact connectivity to the Dukin and Warramuggan Nature Reserves. Therefore, the application area is not considered to be a significant remnant within the Cowcowing lakes.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australi (2013)
GIS Database:
- Cowcowing Lakes 25cm Orthomosaic - Landgate 2004
- DEC Tenure
- Geomorphic Weltands Wheatbelt
- Pre-European Vegetation

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments

Proposal is at variance to this Principle

The proposed clearing is situated on the salt lake floor of Cowcowing lakes, which is an ephemeral wetland (DEC, 2008b; GIS Database). However, inundation events are likely to take the form of small 'pools' following rainfall rather than large-scale inundation of the lake system.

A review of aerial imagery suggests that vegetation within Cowcowing lakes is distinct from vegetation surrounding the salt lake (GIS Database). Given that the application area is located within a lake, the proposed clearing will impact vegetation growing in association with a wetland. However, as a majority of vegetation within the Cowcowing lakes is undisturbed, the proposed clearing is not expected to have a significant impact on the representation of riparian vegetation or the hydrogeological values of the Cowcowing lakes.

Based on the above, the proposed clearing is at variance to this Principle.

Methodology DEC (2008b)
GIS Database:
- Cowcowing Lakes 25cm Orthomosaic - Landgate 2004

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments

Proposal may be at variance to this Principle

The application area occurs within a salt lake in the Avon Wheatbelt bioregion. Soil within this area is characteristically seasonally wet with variable textures, highly saline, and often gypseous or calcerous (Schoknecht and Pathan, 2013). Based on data provided by CSIRO (2013), there is a potential for Acid Sulphate Soils (ASS) to occur within the application area. However, clearing activity is unlikely to disturb any ASS which may be present in the area, and the proponent has advised that any disturbance occurs at least 1 metre above the winter water table (Westdeen, 2014).

The Avon Wheatbelt bioregion has extensive areas with shallow groundwater levels (DEC, 2008b). According to available databases, groundwater salinity within the application area is in excess of 35,000 milligrams/Litre Total Dissolved Solids (TDS) (GIS Database). A majority of the vegetation within the application area does not appear to comprise deep-rooted vegetation (Schnoknecht and Pathan, 2013), and therefore there may be limited capacity for the proposed clearing to result in secondary salinity within the local area.

There is the potential for wind erosion to occur following the removal of vegetation. Land degradation caused by erosion may be minimised by the implementation of a staged clearing condition.

No weed species have been identified by the proponent. However, invasive flora species contribute to land degradation within an area, as they out-compete native vegetation for available resources and increase the frequency and intensity of fires (DEC, 2011). Potential land degradation as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology

CSIRO (2013)
DEC (2008b)
DEC (2011)
Schoknecht and Pathan (2013)
Westdeen (2014b)
GIS Database:
- Groundwater Salinity, Statewide

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments

Proposal is not likely to be at variance to this Principle

The application area does not lie within any conservation areas of Department of Parks and Wildlife managed lands (GIS Database). The nearest conservation area is the Dukin Nature Reserve, located approximately 7.5 kilometres north-east of the application area (GIS Database). From this distance, the proposed clearing is not likely to impact the environmental values of the Nature Reserve, and is not likely to have any impact on connectivity between the Nature Reserve and surrounding landscape.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

GIS Database:
- DEC Tenure

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments

Proposal is not likely to be at variance to this Principle

The application area does not occur within a Public Drinking Water Source Area (PDWSA) (GIS Database). The proposed clearing occurs within Cowcowing lakes, which is a large saline lake system that experiences seasonal inundation. The lake is rarely submerged, and instead experiences 'damp soil' conditions following rainfall (DEC, 2008b). Any surface water which does occur is expected to have naturally moderate to high levels of salinity and sedimentation. Therefore, the proposed clearing is not likely to impact on any surface water values on a local or regional scale.

The Avon Wheatbelt has typically shallow water table (DEC, 2008b), and groundwater salinity within the application area exceeds 35,000 TDS (GIS Database). The proposed clearing is not likely to significantly impact the quality of groundwater on a local or regional scale.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

DEC (2008b)
GIS Database:
- Groundwater Salinity, Statewide
- Public Drinking Water Source Areas (PDWSAs)

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments

Proposal is not likely to be at variance to this Principle

The application area is located on the lake floor of Cowcowing lakes (GIS Database). Cowcowing lakes experience a seasonal hydroperiod, with small-scale and infrequent inundation (DEC, 2008b; GIS Database). The removal of 6.97 hectares of native vegetation within Cowcowing lakes, which cover up to 15,000 hectares (GIS Database), is unlikely to increase the incidence or intensity of inundation events.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology

DEC (2008b)

GIS Database:
- Geomorphic wetlands
- Hydrography, linear

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

There is one native title claim in the application area (GIS Database). This claim (WC2000/7) has been registered with the National Native Title Tribunal on behalf of the claimant group (GIS Database). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Sites of Aboriginal Significance located in the area applied to clear (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Sites of Aboriginal Significance are damaged through the clearing process.

It is the proponent's responsibility to liaise with the Department of Environment Regulation, the Department of Parks and Wildlife and the Department of Water, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

The clearing permit application was advertised on 21 July 2014 by the Department of Mines and Petroleum inviting submissions from the public. There were no submissions received.

Methodology

GIS Database:
- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT
- Native Title Claims - Filed at the Federal Court

4. References

CALM (2002) Bioregional Summary of the 2002 Biodiversity Audit for Western Australia. Department of Conservation and Land Management, Western Australia.

CSIRO (2013) Australian Soil Resource Information System. Available online at: http://www.asris.csiro.au/mapping/viewer.htm, accessed on 11 August 2014.

DEC (2008a) Silky Frankenia (*Frankenia conferta*), Department of Environment and Conservation, Perth.

DEC (2008b) Evaluating the conservation significance of basin and granite outcrop wetlands within the Avon Natural Resource Management region: Stage One Assessment Method, Department of Environment and Conservation, Perth.

DEC (2011) Invasive Plant Prioritisation, Department of Environment and Conversation, Perth.

DEC (2014) NatureMap: Mapping Western Australia's Biodiversity, DEC, http://naturemap.dec.wa.gov.au/default.aspx, viewed August 2014.

Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.

DPaW (2014a) Florabase records for *Pityrodia scabra* subsp*. scabra, https://florabase.dpaw.wa.gov.au/browse/profile/42560,* accessed August 2014.

DPaW (2014b) Florabase profile for *Verticordia mitchelliana* subsp. *Mitchelliana,* https://florabase.dpaw.wa.gov.au/search/specimen/?genus=Verticordia&species=mitchelliana&infrasp=mitchelliana&collector=&collno=&sheetno=&locality=&state=WA&origin=&duplicates=&type=sum, accessed August 2014.

DPaW (2014c) Flora advice to the assessing officer from Species and Communities Branch, Department of Parks and Wildlife. Received 26 August 2014.

Government of Western Australia (2013) 2012 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of October 2012. WA Department of Environment and Conservation, Perth.

Keighery, B.J (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Rick (2011) Survey and Analysis of Plant Communities Growing on Gypsum in the Western Australian Wheatbelt: Botanical consultants report for the Wheatbelt NRM Region and the Department of Environment and Conservation Western Australia, Newdegate.

Schoknecht and Pathan (2013) Soil Groups of Western Australia: a simple guide to the main Soils of Western Australia, Resource Management Technical Report 380, Fourth Edition, Department of Agriculture and Food, Perth.
Westdeen (2014a) Clearing Application Support Document, Westdeen Holdings Pty Ltd, Perth.
Westdeen (2014b) Additional information provided to the assessing officer on 13 August, 2013.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia
DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	Environmental Protection Act 1986, Western Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
RIWI Act	Rights in Water and Irrigation Act 1914, Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

P1	**Priority One - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P2	**Priority Two - Poorly Known taxa**: taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
P3	**Priority Three - Poorly Known taxa**: taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
P4	**Priority Four – Rare taxa**: taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
R	**Declared Rare Flora – Extant taxa** *(= Threatened Flora = Endangered + Vulnerable)*: taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
X	**Declared Rare Flora - Presumed Extinct taxa**: taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

Schedule 1	**Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
Schedule 2	**Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are

declared to be fauna that is need of special protection.

Schedule 3 **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.

Schedule 4 **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

P1 **Priority One: Taxa with few, poorly known populations on threatened lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P2 **Priority Two: Taxa with few, poorly known populations on conservation lands**: Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P3 **Priority Three: Taxa with several, poorly known populations, some on conservation lands**: Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

P4 **Priority Four: Taxa in need of monitoring**: Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.

P5 **Priority Five: Taxa in need of monitoring**: Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999)*

EX **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.

EX(W) **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.

CR **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.

EN **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

VU **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

CD **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.